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Claim Amendments

1. (original) A partially single-stranded, dumbbell-shaped, covalently closed deoxyribonucleic acid molecule, containing one or more sequences having the formula: $N^1N^2CGN^3N^4$, wherein:

N^1N^2 is selected from the group consisting of GT, GG, GA, AT, and AA; and

N^3N^4 is selected from the group consisting of CT, TT, C deoxycytosine, G deoxyguanosine, A deoxyadenosine, and T deoxythymidine.

2. (currently amended) The deoxyribonucleic acid molecule of claim 1, having a chain length within the range of from about 48-40 to about 116-200 nucleotides.

3. (original) The deoxyribonucleic acid molecule of claim 1, wherein the base sequence $N^1N^2CGN^3N^4$ is in the single-stranded stem-loop portion of such deoxyribonucleic acid molecule.

4-42. (canceled)

43. (new) A deoxyribonucleic acid molecule, consisting of a partially single-stranded, dumbbell-shaped, covalently closed chain of deoxyribonucleoside residues, and containing one or more sequences of the base sequence $N^1N^2CGN^3N^4$, wherein N^1N^2 is an element of the

GT, GG, GA, AT or AA group, N^3N^4 is an element of the CT or TT group, as well as C deoxycytosine, G deoxyguanosine, A deoxyadenosine and T deoxythymidine, wherein its sequence being:

- a) GTTCCTGGAG ACGTTCTTAG GAACGTTCTC CTTGACGTTG
GAGAGAAC or
- b) ACCTTCCTTG TACTAACGTT GCCTCAAGGA AGGTTGATCT
TCATAACGTT GCCTAGATCA, or
- c) containing a deoxyribonucleic acid sequence of the base sequence AACG TTCTTCGGGG CGTT,
- d) and wherein the deoxyribonucleic acid molecule has a length of 40 to 200 nucleotides.

44. (new) The deoxyribonucleic acid molecules in accordance with claim 43, wherein the base sequence from characteristic c) is contained in the sequence CCTAGGGGTT ACCACCTTCA
TTGGAAAACG TTCTTCGGGG CGTTCTTAGG TGGTAACC
CCTAGGGGTT ACCACCTTCA TTGGAAAACG TTCTTCGGGG
CGTTCTTAGG TGGTAACC.

45. (new) The deoxyribonucleic acid molecules in accordance with claim 43, wherein the sequence of the base sequence $N^1N^2CGN^3N^4$ is in the single-stranded area.

46. (new) A deoxyribonucleic acid molecule, consisting of a partially single-stranded, dumbbell-shaped, covalently closed chain of deoxyribonucleoside residues, and containing one or more sequences of the base sequence $N^1N^2CGN^3N^4$, wherein N^1N^2 is an element of the GT, GG, GA, AT or AA group, N^3N^4 is an element of the CT or TT group, as well as C deoxycytosine, G deoxyguanosine, A deoxyadenosine and T deoxythymidine, wherein its sequence being

- a) GTTCCTGGAG ACGTTCTTAG GAACGTTCTC CTTGACGTTG GAGAGAAC or
- b) ACCTTCCTTG TACTAACGTT GCCTCAAGGA AGGTTGATCT TCATAACGTT GCCTAGATCA, or
- c) containing a deoxyribonucleic acid sequence of the base sequence AACG TTCTTCGGGG CGTT.

47. (new) The deoxyribonucleic acid molecules in accordance with claim 46, wherein the base sequence from characteristic c) is contained in the sequence CCTAGGGGTT ACCACCTTCA TTGGAAAACG TTCTTCGGGG CGTTCTTAGG TGGTAACC CCTAGGGGTT ACCACCTTCA TTGGAAAACG TTCTTCGGGG CGTTCTTAGG TGGTAACC.

48. (new) The deoxyribonucleic acid molecules in accordance

with claim 46, wherein the deoxyribonucleic acid molecule has a preferred length of between 48 and 116 nucleotides.

49. (new) The deoxyribonucleic acid molecules in accordance with claim 46, wherein the sequence of the base sequence $N^1N^2CGN^3N^4$ is in the single-stranded area.

50. (new) The deoxyribonucleic acid molecules in accordance with Claim 46, wherein said deoxyribonucleic acid molecule contains a deoxyribonucleic acid sequence of the base sequence AACG TTCTTCGGGG CGTT.

51. (new) The deoxyribonucleic acid molecules in accordance with claim 50, wherein the deoxyribonucleic acid molecule has a preferred length of between 48 and 116 nucleotides.

52. (new) The deoxyribonucleic acid molecules in accordance with claim 50, wherein the sequence of the base sequence $N^1N^2CGN^3N^4$ is in the single-stranded area.

53. (new) A method of immunostimulation of humans or higher animals, using a deoxyribonucleic acid molecule comprising one of (A), (B), or (C), wherein (A), (B), and (C) comprise:

(A) a partially single-stranded, dumbbell-shaped, covalently closed deoxyribonucleic acid molecule, containing one or more

sequences having the formula: $N^1N^2CGN^3N^4$, wherein N^1N^2 is selected from the group consisting of GT, GG, GA, AT, and AA; and N^3N^4 is selected from the group consisting of CT, TT, C deoxycytosine, G deoxyguanosine, A deoxyadenosine, and T deoxythymidine;

(B) a deoxyribonucleic acid molecule, consisting of a partially single-stranded, dumbbell-shaped, covalently closed chain of deoxyribonucleoside residues, and containing one or more sequences of the base sequence $N^1N^2CGN^3N^4$, wherein N^1N^2 is an element of the GT, GG, GA, AT or AA group, N^3N^4 is an element of the CT or TT group, as well as C deoxycytosine, G deoxyguanosine, A deoxyadenosine and T deoxythymidine, wherein its sequence being:

- a) GTTCCTGGAG ACGTTCTTAG GAACGTTCTC
CTTGACGTTG GAGAGAAC or
- b) ACCTTCCTTG TACTAACGTT GCCTCAAGGA
AGGTTGATCT TCATAACGTT GCCTAGATCA, or
- c) containing a deoxyribonucleic acid sequence of the base sequence AACG TTCTCGGGG CGTT,
- d) and wherein the deoxyribonucleic acid molecule has a length of 40 to 200 nucleotides; and

(C) a deoxyribonucleic acid molecule, consisting of a partially

single-stranded, dumbbell-shaped, covalently closed chain of deoxyribonucleoside residues, and containing one or more sequences of the base sequence $N^1N^2CGN^3N^4$, wherein N^1N^2 is an element of the GT, GG, GA, AT or AA group, N^3N^4 is an element of the CT or TT group, as well as C deoxycytosine, G deoxyguanosine, A deoxyadenosine and T deoxythymidine, wherein its sequence being:

- a) GTTCCTGGAG ACGTTCTTAG GAACGTTCTC
CTTGACGTTG GAGAGAAC or
- b) ACCTTCCTTG TACTAACGTT GCCTCAAGGA
AGGTTGATCT TCATAACGTT GCCTAGATCA, or
- c) containing a deoxyribonucleic acid sequence of the base sequence AACG TTCTTCGGGG CGTT;

said method comprising the step of:

activating effector cells of an immune system, either in vitro or in vivo, with said deoxyribonucleic acid molecule.

54. (new) The method according to Claim 53, wherein the deoxyribonucleic acid molecule has a preferred length of between 40 and 200 nucleotides.

55. (new) The method according to Claim 53, wherein the sequence of the base sequence $N^1N^2CGN^3N^4$ is in the single-stranded

area.

56. (new) The method according to Claim 53 as vaccine adjuvancy in therapeutic or prophylactic applications.

57. (new) The method according to Claim 53 for induction of an immune response against antigens which are not activating during MHC-I presentation.

58. (new) The method according to Claim 53 for one of:
breaking the tolerance against autoantigens; and
repolarizing of a type-2 immune response to a type-1 response.

59. (new) The method according to Claim 53 containing one or more neutralising CpG motifs ("CpG-N") for blocking stimulation effects of ISS.